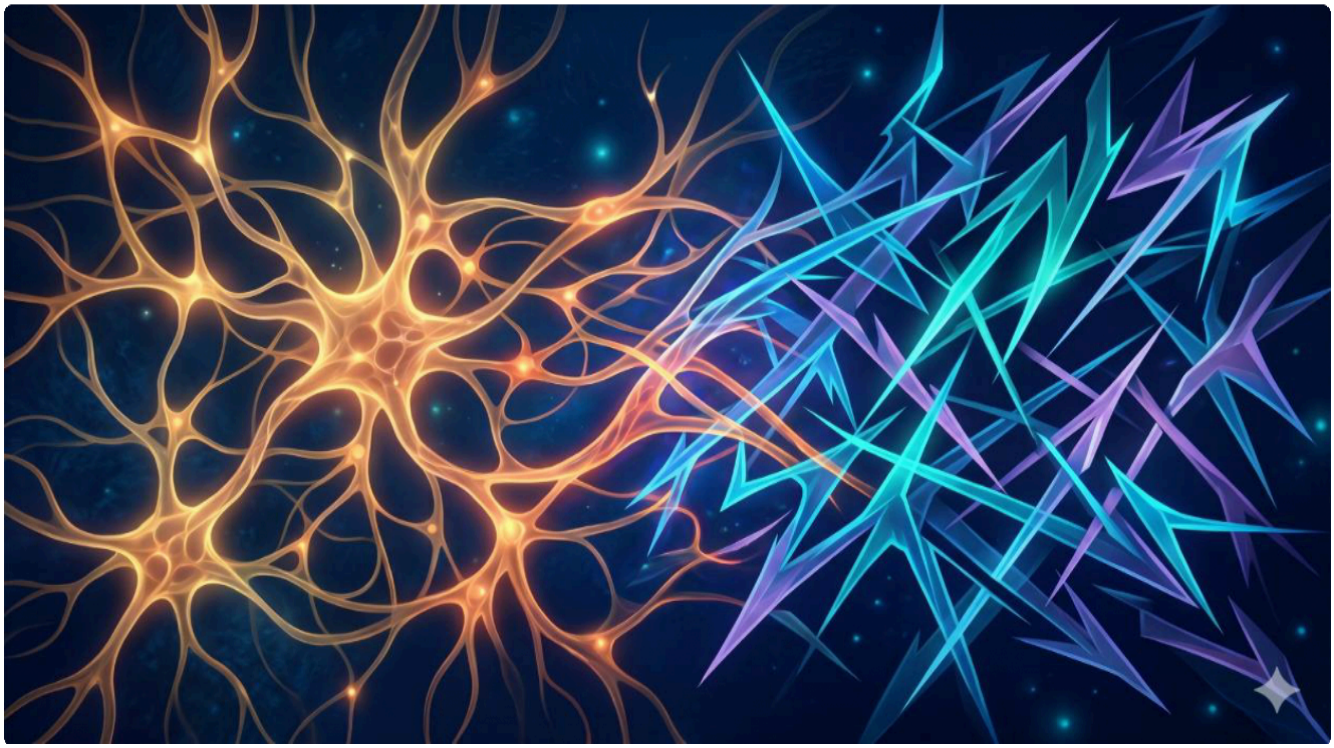

Cooperation is Stronger than Competition: What Biology Actually Tells Us About Nature, Society, and Economics

Why nature grounds neither the free market nor its opposite.

RICHARD PRESCHEL · 2026

ABSTRACT

Libertarian political economy — as articulated by Hayek, Mises, and Friedman, and enacted by Thatcher and Reagan — rests upon a naturalistic foundation: that competition is the primary force in nature, and that this validates market competition as the organising principle of human society. This essay dismantles that foundation at three levels. Biologically, the evidence from endosymbiosis, the microbiome, eusociality, and systems chemistry demonstrates that cooperation is as fundamental as — and frequently more generative than — competition in evolutionary dynamics. Theoretically, Addy Pross's framework of dynamic kinetic stability locates the unit of natural selection at the level of the replicating system rather than the individual, rendering individual welfare irrelevant to evolutionary logic and dissolving the naturalistic grounding for individualist ideology. Economically, the structural asymmetry of actually-existing capitalism — in which profits are privatised while losses are socialised — contradicts the libertarian model at the very moments when market discipline would matter most. I write the economic sections from direct experience: twelve years in the financial data industry and continuing work in risk quantification.

The conclusion is not that cooperation should replace competition as the new ideological foundation, but that the naturalistic scaffolding of libertarian thought collapses, leaving only a bare preference where a theory of nature once stood.

I. The Ideological Fossil

Margaret Thatcher famously declared that there is no such thing as society. Ronald Reagan, assuming office the previous year, had asserted that government is not the solution to our problem — government is the problem. These were not merely political positions; they were metaphysical ones. Behind each claim lay a vision of nature: competitive and individualist. The market, on this view, does not

merely work efficiently — it reflects the deep structure of reality. To interfere with competition is to struggle against nature itself.

I argue that the vision of nature invoked by libertarian political economy is a nineteenth-century ideological artefact, shaped by the same historical forces that shaped Malthus, Spencer, and early Darwin. Contemporary biology, chemistry, and systems theory tell a fundamentally different story — one in which cooperation is not an exception to evolutionary logic but one of its primary engines. And when this corrective is applied not merely to biology but to the economics that borrowed its authority from biology, the entire naturalistic architecture of Hayekian liberalism collapses.

"Mother nature is a bitch."

— SLAVOJ ŽIŽEK

The provocation is useful precisely because it punctures both sides of the naturalistic debate. Nature is not kind. It does not optimise for welfare, flourishing, or justice. But — and this is the crucial asymmetry — it is not therefore competitive in the libertarian sense either. It is indifferent. And indifference is not the same as the law of the jungle.

II. Darwin's Victorian Blind Spot

Charles Darwin was a meticulous observer and a revolutionary theorist. He was also a Victorian Englishman reading Thomas Robert Malthus during the high tide of industrial capitalism and the British Empire. When Darwin formulated natural selection, the ideological atmosphere of his time provided an implicit template:

scarce resources, individual struggle, the elimination of the unfit. “Survival of the fittest” — a phrase coined not by Darwin but by Herbert Spencer, and later adopted by Darwin himself — became the slogan of a world that already believed it.

The phrase is, on inspection, a tautology. Who are the fittest? Those who survive. Who survives? The fittest. In its naive form the statement is unfalsifiable and has no predictive content — it reduces to “survivors survive.” Darwin himself preferred “natural selection” precisely because it gestured at an external criterion: the environment selects. Modern evolutionary biology rescues “fitness” by defining it rigorously as reproductive success relative to conspecifics in a given environment — a technically useful concept within a formal framework, but one that loses all precision the moment it leaves the laboratory and enters political discourse.
Spencer's phrase retained the ideological punch while discarding the scientific content.

The consequences of this intellectual emptiness were not trivial. Precisely because the phrase meant nothing, it could be made to mean anything. Social Darwinism dressed “survival of the fittest” in the authority of natural law and applied it to human races, nations, and classes — always, in practice, to justify what the powerful already wished to do. That is the peculiar danger of a slogan mistaken for a discovery: having no content of its own, it offers no resistance to the uses it is put to. It authorises without arguing.

Peter Kropotkin, the Russian anarcho-communist geographer and naturalist, drew attention to what Darwin's framework tended to underweight. Having conducted fieldwork in Siberia and Manchuria, Kropotkin observed that animals in the harshest environments survived not primarily through competition with one another, but through *mutual aid*: cooperation within and across species. His 1902 work *Mutual Aid: A Factor of Evolution* was a scientifically serious challenge to the dominant reading of Darwin — and it was largely ignored for ideological

reasons. Modern evolutionary biology has vindicated much of what Kropotkin observed, though the conceptual vocabulary has changed considerably.

Having said that, cooperation is no safer than competition as a political ideal: it can lead to the same aberrations. Nazism applied competition to its dealings with other "races" while imposing cooperation within its own society — the state and the nation were everything, the individual no more than a cog in the social machine. Communism, in the name of the common good, subordinates the interests of the individual to those of the collective. As a political ideal, cooperation too has led to totalitarianism.

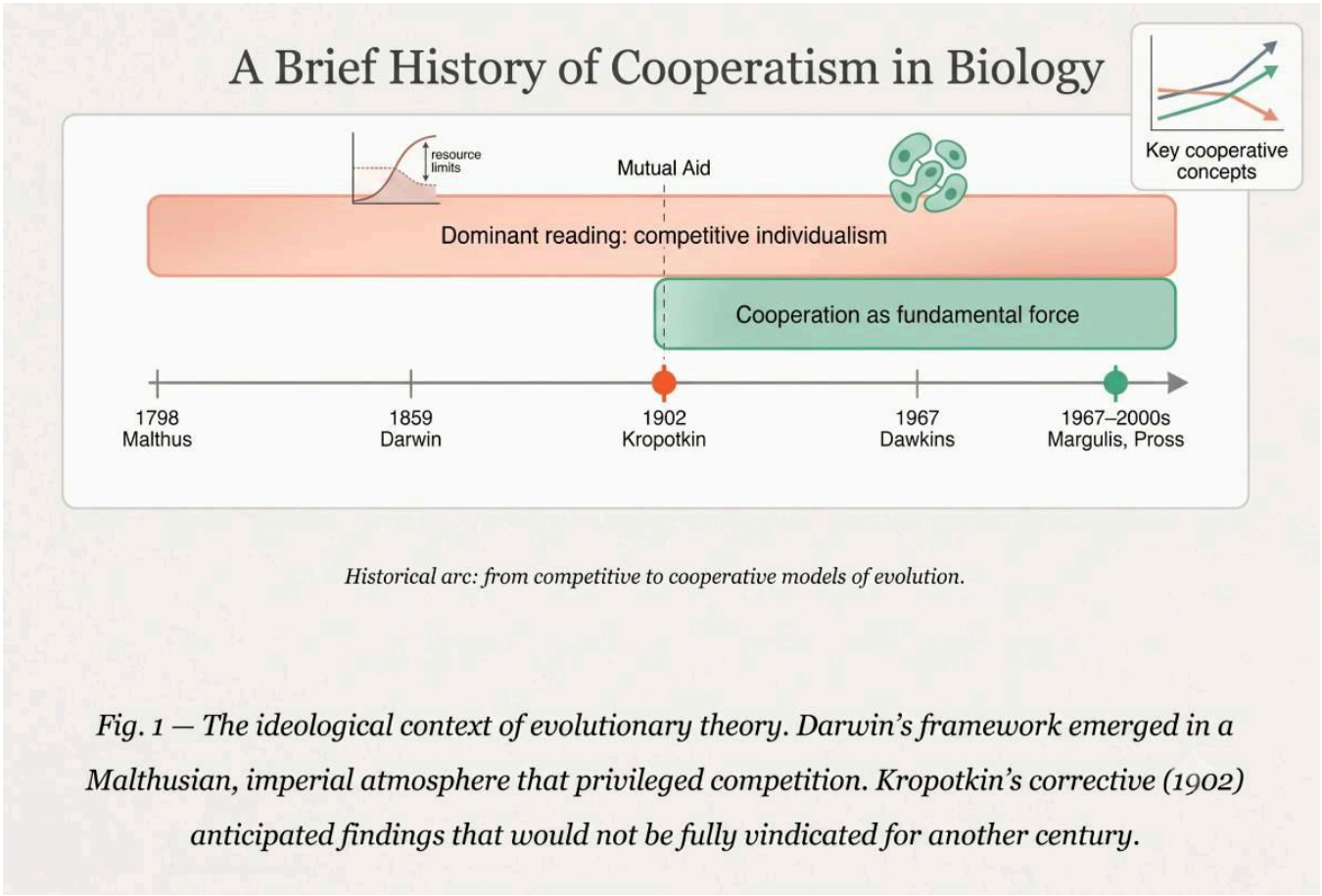

Fig. 1 — The ideological context of evolutionary theory. Darwin's framework emerged in a Malthusian, imperial atmosphere that privileged competition. Kropotkin's corrective (1902) anticipated findings that would not be fully vindicated for another century.

III. The Biological Case for Cooperation

Endosymbiosis: cooperation as the engine of complexity

The most dramatic evidence against competitive individualism as the primary evolutionary force is also the most fundamental. Every eukaryotic cell — every cell in every animal, plant, and fungus on earth — is itself a cooperative merger. The mitochondria that power animal cells were once free-living alpha-proteobacteria; the chloroplasts that enable photosynthesis in plant cells were once free-living cyanobacteria. These are not analogies or hypotheses. They are established facts vindicated by Lynn Margulis over decades of resistance from the biological establishment.

Margulis's endosymbiotic theory, first published in 1967 and initially rejected by fifteen journals, demonstrated that the two greatest leaps in the complexity of life — the emergence of the eukaryotic cell, and subsequently the emergence of photosynthetic eukaryotes — were accomplished not by competitive elimination but by *permanent cooperative merger*. The bacterium that became a mitochondrion did not lose a competition; it entered a relationship so mutually beneficial that neither partner has since been able to exist independently. This is not cooperation as a special case. It is cooperation as the precondition for all complex life.

The microbiome: the individual as ecosystem

The category of "the individual organism" — so central to libertarian political philosophy — is a biological fiction at the cellular level. The human body harbours approximately 38 trillion microbial cells alongside approximately 30 trillion human cells. These microorganisms are not parasites we tolerate; they are partners we depend upon. Gut flora regulate digestion, synthesise vitamins, train the immune system, and produce neurotransmitters implicated in mood and cognition. Remove them, and the organism fails.

The supposedly sovereign individual of libertarian theory is, in biological reality, an ecosystem — a cooperative assemblage of entities with divergent evolutionary histories, bound together by mutual dependence. The boundary of the "individual" does not map onto any clean biological unit. It is a legal and philosophical convenience, not a natural fact.

Altruism, eusociality, and multilevel selection

If competitive individualism were the primary logic of evolution, altruism — behaviour that benefits others at a cost to the actor — would be evolutionarily unstable and should have been eliminated. This was Darwin's own puzzle. The elaborate cooperative structures of social insects in particular seemed to resist any individualist account.

The history of attempts to explain altruism within a gene-centric framework is long and intellectually tortuous. Inclusive fitness theory (kin selection) offered a partial resolution: genes for altruism could spread if directed preferentially toward genetic relatives. But E.O. Wilson, who had once championed kin selection, eventually conceded that it could not account for the full range of cooperative phenomena he observed. His late pivot to multilevel selection — the view that natural selection operates simultaneously on individuals within groups *and* on groups competing with groups — was a significant acknowledgement that the reductionist gene-centric account was incomplete.

Groups of cooperators consistently outcompete groups of defectors, even when individual defectors within a mixed group do better than individual cooperators. The unit of selection, on this account, is not fixed at the level of the gene or the organism. Cooperation is positively selected at the group level.

IV. Pross and the Logic of Replication

Addy Pross's contribution cuts deeper than the empirical record. In his framework of dynamic kinetic stability, developed in *What is Life? How Chemistry Becomes Biology* (2012), the relevant unit of natural selection is not the individual organism, nor even the gene, but the *replicating system as a whole* — the species, or more precisely, the autocatalytic network that sustains and propagates itself through chemical processes.

This shift has a crucial corollary: the well-being of individual organisms is irrelevant to the logic of selection. What persists is not the fittest individual but the most dynamically stable replicating system. An organism is a vehicle for the persistence of a system; whether the vehicle is comfortable, flourishing, or suffering is not a consideration the system entertains.

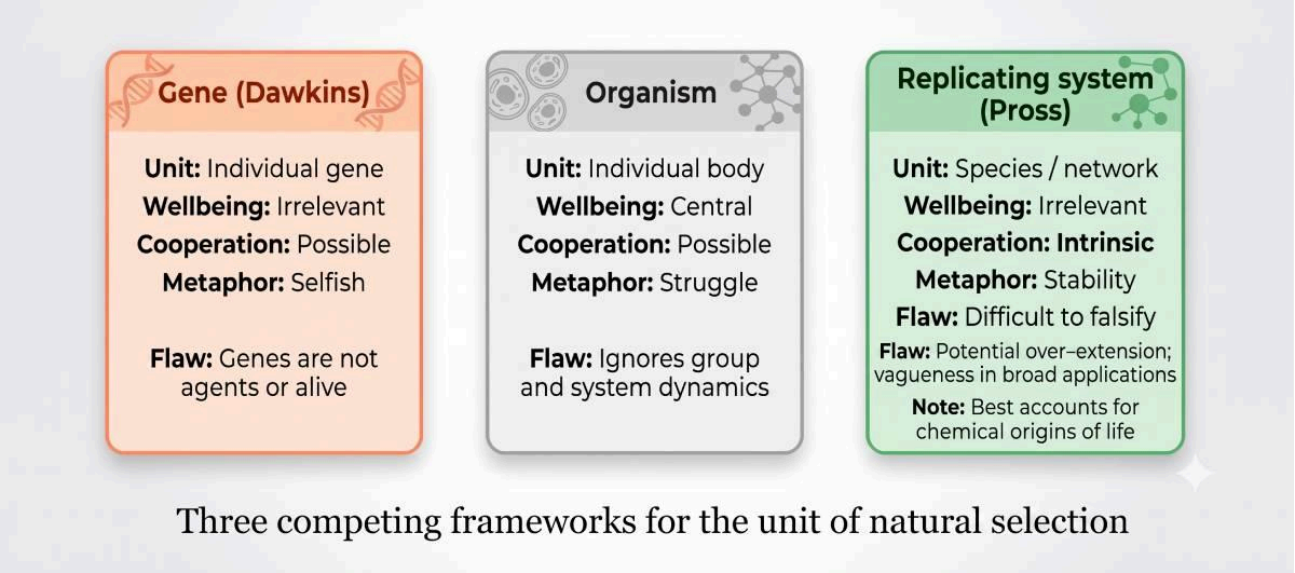

Fig. 2 — Competing accounts of the unit of natural selection. Pross's replicating-system view dissolves the distinction between competition and cooperation at the level of the individual organism, and removes individual welfare from the equation entirely.

This has two consequences for political philosophy. First, it removes any naturalistic grounding for individualism: if the individual is not the unit of selection, then nature does not privilege individual interests, individual agency, or individual welfare. Second, it confirms the Žižekian point about nature's indifference: nature does not optimise for anyone's good. The replicating system persists because it persists — not because its members flourish.

V. The Dawkins Problem

Richard Dawkins's *The Selfish Gene* (1976) is a work of genuine scientific importance that has done considerable ideological damage. Its central claim — that natural selection operates most fundamentally at the level of the gene — is a legitimate scientific position, though now contested. Its central metaphor — that genes are "selfish" — is where the trouble begins.

Genes are not alive. They do not have preferences, strategies, or interests. They do not want anything. "Selfishness" applied to a nucleotide sequence is a metaphor, and Dawkins was aware of this. But metaphors escape their authors. The selfish gene entered culture not as a technical shorthand but as a moral permission slip: if genes are selfish, then selfishness is in our nature; if selfishness is in our nature, then the market's celebration of self-interest is not a choice but a recognition of biological truth.

The irony is that the gene's-eye view does not actually privilege competition over cooperation. A gene that builds cooperative, altruistic organisms can spread perfectly well — Dawkins himself acknowledged this with the concept of the "extended phenotype." The ideological damage was done not by the science but by the metaphor, which created a cultural atmosphere in which competitive individualism appeared scientifically endorsed.

VI. The Capitalist Asymmetry

The naturalistic failure of libertarian theory is matched by its empirical failure in the domain it claims to describe: actually existing capitalism. The libertarian model requires that both profits *and* losses be private — that the market discipline of failure be as real as the market reward of success. Without this symmetry, the price signal cannot function, the incentive structure collapses, and what remains is not a market but a transfer mechanism.

What actually exists, in the economies shaped by Thatcher, Reagan, and their successors, is a systematic asymmetry: the privatisation of profits and the socialisation of losses. This is not a marginal phenomenon; it is structural.

The insurance case

The insurance industry represents the purest theoretical case of privatised risk management. Premiums are collected privately; in principle, catastrophic losses should be absorbed privately too. But when catastrophes exceed a certain scale — major floods, hurricanes, pandemics, financial crises — the insurance industry either exits the market entirely (declaring entire categories of risk "uninsurable") or survives only because the state intervenes. The profits from decades of premiums remain private. The tail risk, when it materialises, becomes public.

This is not corruption. It reflects the genuine limits of what private capital can absorb. But it gives the lie to the claim that markets can efficiently price and absorb all risks. At precisely the moments of greatest consequence, the market fails and the state is invoked.

Crony capitalism as the attractor state

Crony capitalism — the systematic capture of regulatory, legislative, and judicial institutions by private interests — is routinely described as a corruption of the ideal free market. It is more accurately described as the *inevitable attractor state* of deregulated markets. Those with capital have both the means and the incentive to shape the rules in their favour. Deregulation does not produce competitive markets; it produces markets whose regulatory framework is shaped by the most powerful incumbents.

Hayek's spontaneous order was supposed to prevent exactly this. The price mechanism, operating without central direction, would prevent any single actor from gaining the power to distort the system. The historical record suggests otherwise. The financial sector, the pharmaceutical industry, the energy sector, and the technology sector have each, in their different ways, demonstrated that sufficiently concentrated private power can capture the regulatory apparatus of the state — turning it not into an obstacle but into a tool.

Rigged markets: the information asymmetry case

The efficient market hypothesis rests on two foundational assumptions: that market participants act rationally, and that they have access to the same information at the same time. The first assumption has been systematically dismantled by behavioural economics over the past fifty years. The second is violated by deliberate commercial design, openly advertised and entirely legal. I speak from direct experience: I spent twelve years working in the financial data industry as a database manager, processing the very data that makes this asymmetry possible, and I have continued working in risk quantification since. The gap between the theory and the practice is not subtle.

The market data industry — dominated by vendors such as Bloomberg and Thomson Reuters (now LSEG) — sells information asymmetry as a product.

Premium subscribers receive market data in milliseconds; standard subscribers receive it seconds later; free or low-cost feeds are delayed by fifteen minutes or more. These are not incidental differences in service quality. They are the architecture of the business model. In the era of algorithmic and high-frequency trading, where positions are opened and closed in microseconds, the difference between milliseconds and seconds is not a technical detail — it is the difference between acting on information and acting on history. Those who can afford the fastest feed are not competing in the same market as those who cannot. They are playing a different game entirely, on the same board.

This is not a conspiracy. The price lists are published. The asymmetry is the product. A market in which information is explicitly tiered by ability to pay is not a market in the sense that the efficient market hypothesis requires. It is, in the plain sense of the word, rigged.

A conversation during the 2008 crash brought this home with uncomfortable clarity. As markets collapsed across every sector simultaneously — banks, manufacturers, retailers, energy companies falling in perfect synchrony — my brother asked me a simple question: why are the values of completely different industries falling at exactly the same speed at the same time? My answer was that two pillars of financial orthodoxy were failing simultaneously. First, portfolio diversification — the canonical risk management doctrine, the foundational claim that spreading investments across uncorrelated assets protects against systemic collapse — turned out to be a fiction. Everything had been invisibly re-correlated through the same opaque instruments: mortgage-backed securities and credit default swaps that nobody, including those selling them, fully understood.
Diversification had provided the appearance of risk hedging while the underlying risk had been quietly unified. Second, in moments of panic, human beings cease to be the rational independent agents of economic theory and become a herd.
Individually intelligent; collectively no different from buffalo in a stampede. The

market did not aggregate rational judgements into collective wisdom. It aggregated panic into collective catastrophe.

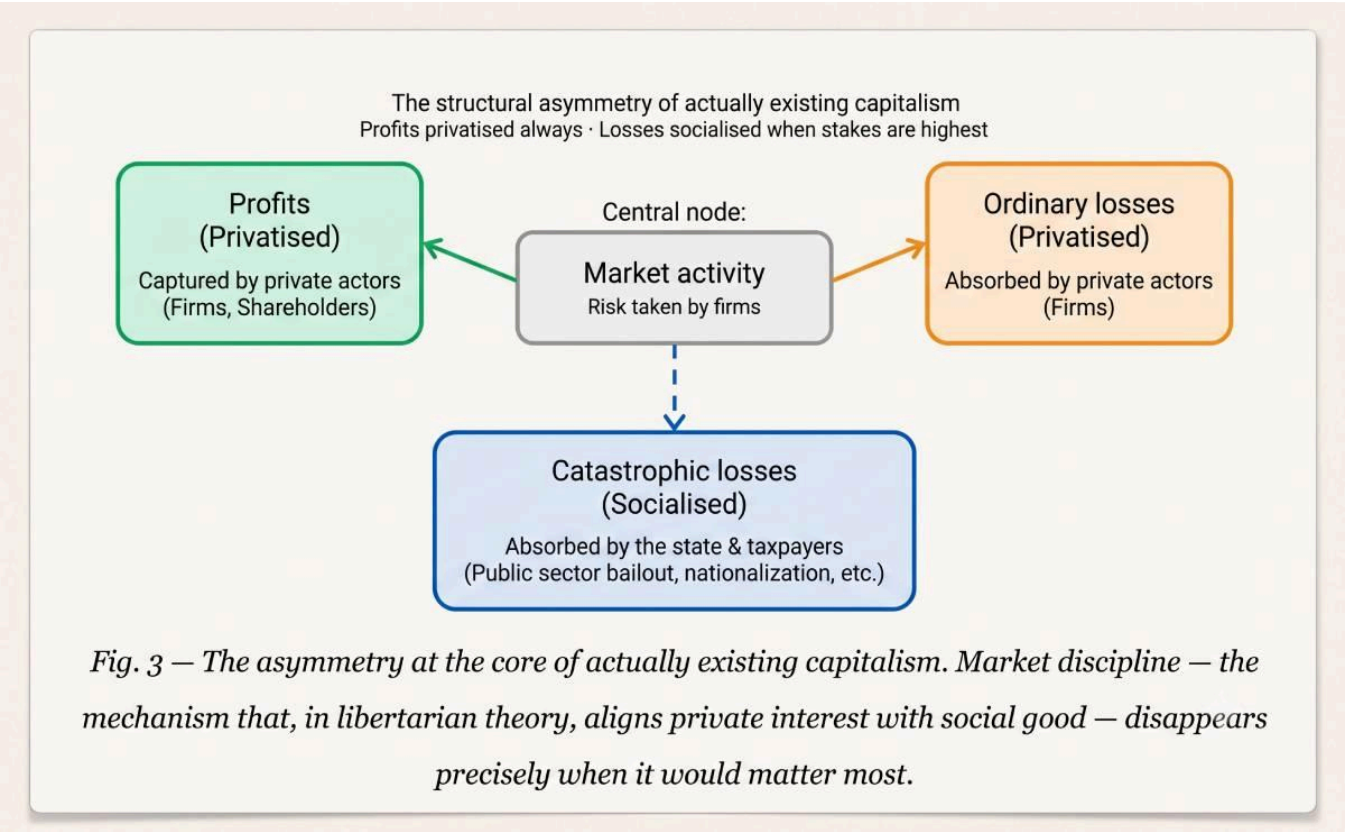

Fig. 3 — The asymmetry at the core of actually existing capitalism. Market discipline — the mechanism that, in libertarian theory, aligns private interest with social good — disappears precisely when it would matter most.

A necessary nuance

It is important to be clear about what this argument does and does not claim. The privatisation of profits and the socialisation of losses is not always wrong. It is frequently done in the legitimate interest of society: preventing mass unemployment when a major employer collapses, maintaining systemic stability when a bank failure would cascade through the economy, insuring against catastrophic risks that no private market can absorb. These are defensible interventions, often necessary ones.

The point is not that the asymmetry is evil by design, or that it requires a conspiracy to explain. It emerges from rational lobbying by concentrated interests, from path dependency once bailouts become expected, and from genuine collective interests in preventing systemic collapse. No conspiracy is required. The structure produces the outcome.

The point is rather that the asymmetry gives the lie to libertarian theory. The world Hayek and Friedman describe — in which the market disciplines all participants symmetrically, in which profits and losses are both private, both real, both instructive — does not exist. It has never existed. The losses get socialised precisely when the stakes are highest. The market's disciplining function, the mechanism that is supposed to make everything else work, evaporates at the critical moment.

VII. The Double Collapse

We are now in a position to state the full argument. Libertarian political economy fails at two levels simultaneously — and these failures are structurally related.

At the level of nature, the claim that competition is the primary evolutionary force is false. Cooperation is as fundamental, frequently more generative, and responsible for the most dramatic increases in biological complexity. The unit of selection is not the individual organism but the replicating system — which means that individual welfare is not what evolution optimises for, and that the naturalistic grounding for individualist political philosophy is absent.

At the level of economics, the claim that actually existing capitalism operates through symmetrical market competition is false. Profits are privatised; catastrophic losses are socialised. The market's disciplining mechanism fails at exactly the moments of greatest consequence. Crony capitalism is not an exception to the rule; it is an attractor state of deregulated markets.

The two failures are related because libertarian economics borrowed its authority from a misreading of evolutionary biology. The Victorian reading of Darwin — competition as the master process, the individual as the unit — was wrong. The political economy derived from that reading inherits its wrongness.

What remains of the libertarian argument, once its naturalistic scaffolding is removed, is a bare preference — which is a much weaker and more honest position than "this is how nature works."

VIII. What Cooperation Does Not Entail

The argument of this essay is sometimes misread as a simple reversal: if libertarians said "nature is competitive, therefore free markets," do I now say "nature is cooperative, therefore socialism"? The answer is no, for two reasons.

First, Žižek's provocation is an important brake. Nature is indifferent to welfare. Cooperative systems in nature can be brutal to the individuals within them. The microbiome is cooperative at the system level and opportunistically pathogenic when the host weakens. Endosymbiosis, in its original form, was almost certainly a violent capture before it became a stable partnership. To read a political prescription off cooperation in nature is to commit the same naturalistic fallacy that the libertarians committed with competition.

Second, the conclusion is not that cooperation should be mandated or that competition should be eliminated. As I noted after Kropotkin, cooperation enforced as a political ideal has totalitarian pathologies of its own — the Nazi cog-in-the-machine and the communist subordination of the individual to the collective are expressions of that ideal, not deviations from it. The point here is the deeper one: even setting those political dangers aside, the naturalistic foundation of libertarian ideology collapses — which means the debate about markets, states, and social organisation must be conducted on genuinely political and ethical grounds, without the borrowed authority of misread biology.

What we do with cooperation as a deliberate value — institutionally constructed, politically chosen — is a question that nature cannot answer for us.

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